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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,270	08/28/2000	Lawrence A. Crowl	SUN1P380/P4501	6759

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EXAMINER

VU, TUAN A

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

77

Office Action Summary

Application No.

09/649,270

Applicant(s)

CROWL ET AL.

Examiner

Tuan A Vu

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 28 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/28/00 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This action is responsive to the application filed August 28, 2000.

Claims 1-21 have been submitted for examination.

Claim Objections

2. Claim 20 is objected to because of the following informalities: the element “the enhanced compiler related product”, line 2 should be corrected to become --the compressed compiler related product—to correspond to claim 16 from which this claim depends.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Note: 35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

4. Claims 1-2, 8, 10-13, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Unger et al., USPN: 5,991,173 (hereinafter Unger).

Art Unit: 2124

As per claim 1, Unger discloses a method of generating compiler products (e.g. Fig. 7) in a compressed form, said method comprising:

compressing a portion of compiler information to obtain compressed compiler information (e.g. steps 210, 212, 213, 214, Fig. 8); and

producing a compressed compiler product based on at least the compressed compiler related information (e.g. step 218, 219, Fig. 8; col. 12, lines 1-6).

As per claim 2, Unger further discloses that the compiler information being compressed includes symbol names (e.g. *vocabulary word, token* – col. 9, lines 5-30; *numeric string, currency symbols* – col. 10, lines 23-39).

As per claim 8, Unger further discloses that the compressed compiler related product is a source browser information file (Fig. 2; *HTML files* -- col. 8, lines 7-48).

As per claim 10, Unger discloses a method for generating uncompressed symbol names being associated (col. 9, lines 5-30; col. 10, lines 23-39) with compiler information, said method comprising:

identifying a compressed symbol name being associated with compiler information (*token, words, strings* – col. 16, lines 8-17; Fig. 5);

obtaining information relating to the compressed symbol name (e.g. *dictionaries* – col. 38-55); and

decompressing the compressed symbol name to obtain a symbol name in a uncompressed form (col. 15, line 60 to col. 16, line 7).

As per claim 11, Unger further discloses obtaining information (*tag tree 54, vocabulary 58* – Fig. 7) referenced by a symbol reference (*hyperlinks* – col. 7, lines 32-44; *tag* -- Fig. 4,5)

included in the compressed symbol name (e.g. step 214, 220, *compressed objects/text* - Fig. 8); the symbol reference providing a reference to a base symbol (*files A and J, pages C, I* -- col. 7, lines 32-44; Fig. 5) that is associated with the symbol name represented by the compressed symbol name (*compressed objects/text* – Fig .8; col. 9, lines 5-30; col. 10, lines 23-39).

As per claim 12, Unger further discloses that base symbol is the container of the symbol represented by the compressed symbol name (e.g. *files A and J, pages C, I* -- col. 7, lines 32-44 – Note: compressed text or numerals in objects of Fig. 8 are contained in files or pages referenced by links, tag or hyperlinks in Fig. 5. This is equivalent to base symbol, or containers, e.g. files/pages A, J, C, I, for text data symbols compressed in objects/text of Fig. 8).

As per claim 13, Unger discloses a compilation system suitable for compiling source programs, said compilation system comprising:

an enhanced compiler suitable for generation of enhanced compiler products (products 54-62 – Fig. 7), such compiler compiles a source program to produce enhanced compiler products with a reduced size in comparison with conventional compiler products (e.g. col. 1, line 47 to col. 2, line 39; steps 210, 212, 213, 218 -- Fig. 8); and

at least one enhanced non-compiler component that understands and utilizes the enhanced compiler products (e.g. *proxy* – col. 14, lines 14-58).

As per claim 15, Unger discloses a compiler related product to be a browser information file (Fig. 2; *HTML files* -- col. 8, lines 7-48).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9, 16-17, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al, USPN: 5,991,173.

As per claim 9, in reference to claim 1, Unger further discloses that the compressed compiler related product is a debugger information (e.g. *tag tree* -- Fig. 7; *determining how* -- col. 7, lines 39-64; col. 14, lines 18-54; Fig. 13; step 700, *log file 702* -- Fig.14 – Note: the tag tree and dictionary are equivalent to information used in conjunction with consistency checking between hyperlinks and related compressed HTML files, i.e. debug information supportive of the hypertext material re-assembling/binding from transfer across a network). But Unger does not specify that such debug information is compressed in Unger's disclosed compiler related product. In view of Unger's disclosed network communication environment and link navigation scheme using the tag tree as mentioned above, it would have been obvious for one of ordinary skill in the art at the time the invention was made to also compress the debug information as disclosed by Unger above into the compressed compiler product in Unger's invention because it would preserve further storage space or bandwidth in the transferring medium for communicating compiled objects to reconstruct the requested pages via a network as disclosed by Unger.

As per claim 16, this is a computer-readable medium claim corresponding to claim 1 above, including all the limitations therein, hence is rejected herein for the same reasons as set forth therein; but further includes a computer-readable medium which Unger does not specify. Official notice is taken that the use of computer-readable medium to embody computer program

method/code was a well-known concept at the time of the invention; hence it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a computer-readable medium to store the computer program encoding the method as disclosed by Unger because that would facilitate code execution in a distributed fashion and improved product distribution.

As per claim 17, this is computer-readable medium version of claim 2; hence is rejected herein for the same reasons as set forth therein.

As per claim 20, this claim includes the same limitations as claim 15 above, hence is rejected herein for the same reasons as set forth therein.

As per claim 21, this is a computer-readable medium claim corresponding to claim 10 above, including all the limitations therein, hence is rejected herein for the same reasons as set forth therein; but further includes a computer-readable medium which Unger does not specify. But this limitation has been addressed in claim 16 above, and herein is rejected for being obvious using the same rationale as set forth therein.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al, USPN: 5,991,173 as applied to claim 1 above, in view of Porter, USPN: 6,163, 811 (hereinafter Porter).

As per claim 7, Unger discloses that the source program to compile is HTML material such as HTML, XML, SGML files (e.g. col. 5, lines 1-12); but does not specify that the source program is a programming language written in C++, Java, Pascal, or Fortran. Porter, in a method to compress application code using tokenized source data and symbol storage analogous to the tokenized compression as disclosed by Unger, discloses the use of Java program source code for

compression (e.g. col. 4, lines 6-24; Figs. 1-3). It would have been obvious for one of ordinary skill in the art at the time the invention was made to use a source program written in Java as taught by Porter and submit it to the compression process used by Unger because Java language programming and its products are well-known for their portability and platform independency as well as support of many browser applications and material, i.e. HTML, XML applications just as suggested in Unger's invention.

8. Claims 3-6, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al, USPN: 5,991,173 as applied to claims 2, 16 above, in view of Burrows, USPN: 6,005,503 (hereinafter Burrows).

As per claim 3, Unger discloses compressing operable to reduce the length of a plurality of symbol names using encoding schemes (*Huffman, Lempel-Ziv* -- col. 8. lines 45-52); but does not specify such encoding scheme is differential encoding scheme. One of ordinary skill in the art would recognize that the differential encoding scheme is analogous to the delta encoding which encodes the difference between 2 sets of data. One of ordinary skill in the art would recognize the more complicated scheme of encoding such as in Huffman's or Lempel-Ziv's, which uses predictive and probabilistic computation, and the differential encoding scheme using only simpler utilities to extract difference. Such differential encoding scheme, or delta encoding, reduces storage as well as demands less computation in regard to the subsequent decoding or reconstructing of encoded data; and this teaching is disclosed by Burrows in a system to reduce memory resources usage (e.g. col. 2, lines 7-25; *delta values* --col. 3, line 45 to col. 4, line 38; col. 5, lines 3-26) analogous to the data size reduction technique used by Unger's compression method. It would have been obvious for one of ordinary skill in the art at the time the invention

was made to implement the differential encoding scheme as taught by Burrows to further complement the encoding techniques mentioned by Unger because the differential scheme uses a simpler algorithm hence can obviate further computing resources usage, e.g. predictive computation related resources used in Huffman or Lempel-Ziv encoding as suggested by Unger, and which also enable a less complicated decoding/reconstructing scheme just as noted by Burrows above.

As per claim 4, Unger discloses encoding a symbol name in the compiler information (Fig. 8; col. 8. lines 45-52) with a encoded format but does not specify identifying a symbol name that is encoded in an extended format encoding; nor determining a differential encoding for the symbol name; nor replacing the extended format encoding for the symbol name with the differential encoding. But in view of the teachings by Burrows to encode symbol characters or integers using the delta, just as mentioned in Burrows' system in claim 3 above, one of ordinary skill in the art would recognize therein the presence of both symbols prior to the delta being computed and those making up the delta list, hence it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the differential encoding by Burrows and apply it to Unger's method and establish the distinction between the encoded symbols prior to the delta extraction, i.e. identifying the extended format encoded symbols, and the symbols making up the delta portion, i.e. determining the differential encoded (delta) symbols, in order to replace the extended format of such symbols by the differential encoded format thereof. One of ordinary skill in the art would be motivated to do so because of the same reasons rendering claim 3 obvious as set forth therein.

As per claim 5, Unger discloses determining a symbol name identifier (e.g. *token* – col. 8, line 54 to col. 9, line 14; *token range* – Fig. 9); and attaching such identifier to the encoding (Fig. 8; *token numbers* -- col. 9, lines 39-54; steps 210, 212 – Fig. 8). However, Unger does not disclose that such encoding is a differential encoding; but this limitation has been addressed for obviousness in claim 3 above and herein is rejected for the same rationale therein.

As per claim 6, Unger discloses a container reference to indicate a container name associated with at least one of the symbol names (e.g. *Token Range* – Figs. 9, 10).

As per claim 18, this is a computer-readable medium version of claim 3 above; and includes all the limitations of claim 3; hence is rejected herein for the same reasons set forth therein.

As per claim 19, this is a computer-readable medium version of claim 4 above; and includes all the limitations of claim 4; hence is rejected herein for the same reasons set forth therein.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al, USPN: 5,991,173 as applied to claim 13 above, in view of Klein S.T., Bookstein A., Deerwester S., “Storing Text Retrieval Systems on CD-ROM: Compression and Encryption Considerations”, July 1989, ACM Trans. *On Information Systems* 7, pp. 230–245(hereinafter Klein).

As per claim 14, Unger discloses using encoding technique to reduce size of the enhanced compiler product (*Huffman* -- col. 8. lines 45-52), e.g. Huffman encoding; but does not specify that such reduction is up to 40 percent of sizes of conventional compiler products. Klein, in a method to compress text data for a storage medium, discloses that Huffman encoding can achieve between 48% and 52.5% compression of English text, using different character bytes

Art Unit: 2124

setting (p. 5, last paragraph) or between 40-65 % for text or dictionary, respectively (p. 22, Table 1). It would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the statistical results by Huffman encoding such as taught by Klein into Unger's technique of compressing using the same encoding technique because achieving up to 40% or better of size reduction would better preserve storage resources as intended in Unger's compression technique.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat No. 5,640,559 to Silberbauer et al., disclosing encoding C/S streams with application call, E/R data.

U.S. Pat No. 6,457,173 to Gupta et al., disclosing encoding opcodes by common groups using templates.

U.S. Pat No. 5,923,880 to Rose et al., disclosing ancestor class and reference in calls and delta C++ compiler.

U.S. Pat No. 5,664,189 to Wilcox et al., disclosing container and data fields in OO navigation system.

"Potential benefits of delta encoding and data compression for HTTP", Mogul et al., Sep. 1997, Proc. ACM SIGCOMM'97 Symposium.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

Art Unit: 2124

(703) 746-7239, (for formal communications intended for entry)

or: (703) 746-7240 (for informal or draft communications, please label

“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. , 22202. 4th Floor(Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

VAT
March 15, 2003



JOHN CHAVIS
PATENT EXAMINER
ART UNIT 2124